Winter 2005

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NSU Oceanographic Center

Nova Southeastern University
Oceanographic Center

Currents

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Researchers Concerned by Drop in Sea Turtle Nesting.

Stefanie Ouellette, manager of NSUOC's sea turtle conservation program, attended the 25th Annual Symposium on Sea Turtle Biology and Conservation—along with **Joe Hall**, **Jessie Watters**, **Nicole Hamati**, **Fred Ottman**, **Christian Legner**, **Leslye Waugh**, and other workers from the project. The symposium was held in Savannah, Georgia, January 16–22. It attracted about 1,000 biologists and conservationists working with marine turtles. The main topic of discussion was the declining number of sea turtle nests, which has alarmed researchers across Florida.

Since 1978, the Oceanographic Center, under contract with Broward County, has provided for the conservation of endangered and threatened sea turtle species within its area of responsibility. Three types of turtles nest in Florida: the loggerhead, the green, and the leatherback—largest member of the sea turtle population. During the last decade, researchers have found a significant decline in loggerhead nests. Ouellette presented a poster titled, "A status of sea turtle nesting in Broward County, Florida," co-authored by **Curtis Burney**, Ph.D., and principle investigator (PI) of the sea turtle program. Just since 2000, loggerhead nesting in Broward County has declined by more than 31 percent. This year's count was the lowest since 1996, and could be attributed in part to the hurricanes that hit the Florida east coast. Hurricanes Frances and Jeanne adversely impacted 245 loggerhead and 64 green nests. The impact the nest faced depended on which type of nest (in situ or relocated) and/or where the nest was located on the beach. Of the affected nests, almost all of the in situ nests or their markers were washed out, and the relocated ones were buried with excess sand.

Female loggerhead sea turtle digging her nest on a Broward County beach.

Green sea turtles have shown a pattern of relatively high and low nesting in alternating years, suggesting a predominant two-year remigration interval that has persisted for 16 years. And while they continued this alternating pattern with higher nesting on even numbered years, this year's nest count was the lowest in an even numbered year since 1996. Leatherbacks are a lot less predictable and common on Broward County beaches. There were only four nests this season, so it is not possible to get significant data regarding their habits.

This downward trend seemed indicative of other nesting beaches across Florida. Data from the Archie Carr National Wildlife Refuge—a 20-mile stretch on Florida's east coast from Melbourne Beach to Wabasso Beach—shows the number of loggerhead nests have dropped steadily since 1998. Then, almost 18,000 nests were dug in the refuge. Last year, approximately 8,000 were dug. This is an almost 45 percent decline.

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People on the Move

International Coral Reef Restoration

On February 10–12, **Richard E. Dodge**, Ph.D., dean of the OC, attended a meeting of the Coral Reef Restoration Working Group (RRWG). The meeting was held on the campus of the University of Newcastle Upon Tyne, United Kingdom. The RRWG is one of six working groups of the World Bank Global Environmental Fund Targeted Research Project. This is an international effort to increase knowledge and to build capacity for the study of reefs.

Science of the restoration of coral reefs is in its infancy, with the largest attempts at restoration focusing on restoring coral cover on just a few hectares of reef. Coral reefs are complex ecosystems that are being rapidly degraded by a host of natural and anthropogenic causes. Our scientific understanding of their ecology is insufficient to allow us to manipulate them with confidence.

The Restoration and Remediation Working Group is studying the restoration of coral reefs at a range of temporal and spatial scales in a series of integrated experiments. The RRWG will initially develop and apply experimental protocols at the Southeast Asia Centre of Excellence at the Bolinao Marine Laboratory of the Marine Science Institute, University of the Philippines. Later investigations will test these in other regions with different environments and ecology.

(L–R) Richard E. Dodge; Ed Gomez, university professor, Marine Science Institute, College of Science, University of the Philippines; Baruch Rinkevich, senior scientist, head of the marine biology and biotechnology department, The National Institute of Oceanography, Israel; Alasdair J. Edwards, senior lecturer, University of Newcastle; and Tadashi Kimura, senior research scientist, Japan Wildlife Research Center.

NCRI and Coral Reef Capacity Building in the Middle East

Sam Purkis, Ph.D., and **Bernhard Riegl**, Ph.D., spent January in the Arabian Gulf, initiating a three-year project that aims to advance the conservation, management, and sustainable use of coral reefs in the waters off the emirate of Abu Dhabi and the state of Qatar. Besides Riegl and Purkis, the project is staffed by

(Continued on page 3)

Sam Purkis relaxes with an eager class of SCENR researchers.

Bernhard Riegl (R) accompanies Nasser Al Shaiba in the field.

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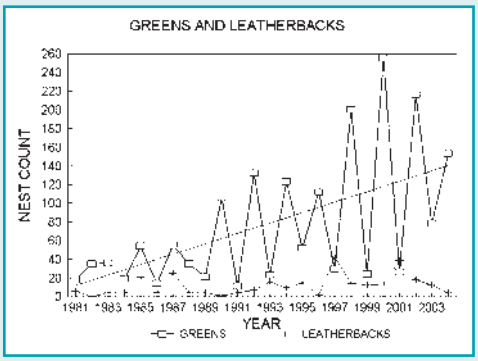
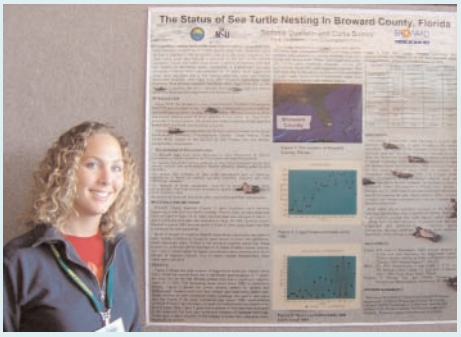
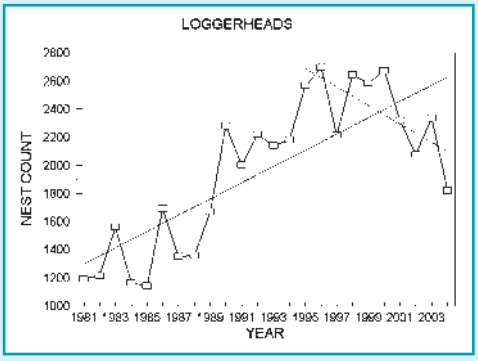
While sea turtle nesting normally fluctuates from year to year, such a sustained decline is ominous and could suggest a decline in the size of the sea turtle population. The Florida Fish and Wildlife Conservation Commission reported that the number of dead or debilitated turtles reported from January to July, 2004 was 88 percent above the previous ten-year mean.





Ouellette with her poster



For more information on the Sea Turtle Conservation program, go to *www.nova.edu/ocean/seaturtles*.

New Addition to the NSU Research Fleet at the Oceanographic Center

The Oceanographic Center has acquired a (previously owned) 29' Phoenix twin diesel vessel for use in research monitoring to help fulfill its role in the upcoming Broward County beach renourishment project. The 1978 vessel is in good working condition and will be employed immediately. **Richard Dodge**, Ph.D., OC dean, was on the dock to greet its arrival, along with the project's manager, **David Gilliam**, Ph.D.

NSUOC scientists are the designated biological monitors for the project. Researchers will monitor 34 offshore sites each week for signs of sedimentation and coral stress. Should levels exceed certain experimentally predetermined thresholds, dredging within the vicinity will cease until the reef animals can recover. The newly acquired vessel will be used by teams of four scuba divers for underwater observations, collections, and photography. The initial phases of this project have begun. Actual dredging by the county's contractor is expected to start in April.

L–R: M.S. student and assistant harbor master, Brian Buskirk; Capt. Lance Robinson; Dan Fahy; M.S. student Joanna Walczak; and project manager, Dave Gilliam, Ph.D.

Capt. Lance Robinson, with Brian Buskirk on the bow, maneuvers the newly acquired research vessel into the Oceanographic Center's boat basin.

Thanks are due to those who assisted in the acquisition of the vessel: **Lance Robinson**, **Peggy Oellrich**, George Hanbury, Joel Berman, Jeff Lowe, Cherrie Gooden, Shirley Naidoo, and **Dave Gilliam**.

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representatives from ERWDA (Abu Dhabi's Environmental Research and Wildlife and Development Agency) and SCENR (Qatar's Supreme Council for the Environment and Natural Reserves), while the exercise is marshaled by the World Wildlife Fund (WWF). Emphasis is placed on producing an inventory of coral reefs in the study area and auditing the diversity and condition of the coral habitats. Through continued training in the classroom and field, Riegl and Purkis will build the capacity of local scientists to facilitate long-term monitoring and conservation in the region. In collaboration with the local agencies, NCRI and WWF will formulate and install a management strategy for the area. In addition to valuable fieldwork, the exercise serves as a means to exchange knowledge between different agencies and increase collaboration in the Middle East. The two NSUOC scientists will return to the gulf in April 2005 to lead a joint field cruise to the offshore reefs and shoals of the Qatari peninsula.

Research on Amphipods in the Pacific

During the months of October and November, **James Thomas**, Ph.D., and M.S. student **Kris Klebba** traveled to Hawaii and Sulawesi, Indonesia, to conduct research on the systematic and evolutionary diversity of coral reef amphipods. In Hawaii, Thomas and Klebba were investigating preliminary reports of a possible introduction of a non-native species of amphipod, *Paraleucothoe flindersi* to Hawaiian waters. This amphipod, which dwells inside sponges, was first reported from Pearl Harbor in Hawaii in 1996. This highly unique amphipod species was previously known only from a single specimen collected from Flinder's Passage (Australia) during the *HMS Challenger* voyage.

Scientists at the Bishop Museum in Hawaii suspected *P. flindersi* may have arrived on the U.S. Navy dry dock, *Legacy*, which was moved to Pearl Harbor from Subic Bay, Philippines. In prior visits to the Bishop Museum, Thomas discovered this unique amphipod in unprocessed collections of the Bishop Museum. During their visit, Thomas and Klebba confirmed the identification of the amphipod from museum collections as *P. flindersi*. In a series of dives around Oahu, they also discovered the host sponge species, which was previously unknown. Since it was first recorded in Pearl Harbor in 1996, *P. flindersi* has now been recorded in collections from Molokai, Maui, and the big island of Hawaii. It is suspected that a number of non-indigenous species may have colonized Hawaiian waters after the arrival of the *Legacy* dry dock in 1996.

In Sulawesi, Thomas and Klebba investigated amphipod ecology on reefs from Bunaken and Lembeh Strait. They were successful in collecting several undescribed species, while confirming new host records and ecology for leucothoid amphipods.

Grants and Awards

Andrew Rogerson, professor and associate dean of the Oceanographic Center, has been awarded $60,000 from the U.S. Coast Guard to conduct a study entitled "screening of surrogate species for ballast water treatment." This research is needed so that the Coast Guard, in partnership with the Environment Technology Verification program, can compile protocols for monitoring the efficiencies of emerging treatment technologies ahead of installing these systems on board ship. This research is in collaboration with Woods Hole Oceanographic Institute, Old Dominion University, and the University of Washington.

Andrew Rogerson with a cruise ship in the background

Edward O. Keith, Ph.D., has received an award of five days of ship time during May 2005 from the Florida Institute of Oceanography (FIO) to conduct visual and acoustic surveys for cetaceans in the Bahamas. This award will allow Keith to follow up on a previous cruise supported by FIO to the Bahamas in November 2003. This research is being conducted in collaboration with scientists from the NOAA Fisheries Southeast Fisheries Science Center, and is designed to 1) expand our knowledge of marine mammal presence and distribution in the Bahamas; 2) instruct NSUOC graduate students in the visual and acoustic survey techniques; and 3) to collect ancillary oceanographic and biological data.

Keith also received a research permit from the United States Fish and Wildlife Service to conduct the captive portion of his research project entitled "Development of an infrared underwater camera to detect manatees." This project is funded by the Florida Fish and Wildlife Conservation Commission under the Manatee Avoidance Technology Program, and was one of only three such projects funded for FY 2004–05. Keith will be conducting this project at the Lowry Park Zoo in Tampa. This project attempts to explore the use of new technology to reduce the primary known mortality factor for manatees in Florida—getting hit by boats. Keith envisions a system whereby an underwater camera mounted in the bow of the vessel projects an image on a monitor visible by the vessel operator, who can then slow down or make an evasive maneuver if a manatee is sighted in front of the vessel. Such cameras are already commercially available, and quite reasonably priced, so installing such a system would not constitute a major increase in the cost of new vessels sold in Florida, nor would it be prohibitive to retrofit existing vessels.

James Thomas, Ph.D., recently received a grant from the Smithsonian Institution to continue his work on the ecology and molecular systematics of commensal amphipods of the Belize Barrier Reef. Funding will be for travel, accommodation, and supplies for Thomas and a student to work on Belize reefs from the Smithsonian Field Station at Carrie Bow Caye, Belize.

Kris Klebba has been awarded a travel grant by the Australian Museum in Sydney to participate in a research inventory at Lizard Island Research Station in the northern section of the Great Barrier Reef. In late February, Klebba will join a team of scientists from Australia and Europe that are participating in the first-ever taxonomic inventory of ecologically important crustacea. She will lend her expertise in underwater collection of small crustaceans to the project, as well as publish the results of her findings in the records of the Australian Museum.

Marcy Henning, a graduate student under Mahmood Shivji, Ph.D., won the Edward Whittaker Research Poster Award for outstanding student presentation in forensic science at the recent Third Annual Forensic Sciences Symposium, held February 4 and 5, 2005, at NSU's Health Professions Division auditorium. Her poster, entitled "A genetic assay to rapidly and accurately identify ridgeback sharks for fisheries management, law enforcement, and conservation," was in competition with almost 20 other student posters from various universities. As the winner of the competition, Henning received a $250 award and her name will be added to the Edward Whittaker Award plaque, displayed in the Alvin Sherman Library, Research, and Information Technology Center on NSU's main campus.

Marcy Henning with her winning poster

The symposium brought together scientists and students involved or interested in the forensic sciences and featured several speakers who are professionals or professors in the field. Other activities included a detector dog demonstration and workshops involving insect identification for forensic study and the collection of DNA samples by DNAPrint Genomics for biogeographic profiles. The keynote speech was delivered on Friday, February 4, by Dayle Hinman, host of Court TV's *Body of Evidence*, *From the Case Files of Dayle Hinman*. Hinman recently retired from her position as the chief profiler and the statewide coordinator of the FDLE Crime Analysis/Profile Program; her presentation discussed the process of criminal profiling, its evolution, the types of cases that are suitable for profiling, and the path to becoming a profiler.

Boulder Finds Way to Mesozoic Garden

Charles Messing, Ph.D., is involved with the Mesozoic Garden on NSU's main campus, and decided that a large fossil boulder found at the center belonged there. The boulder was excavated by maintenance technician Felix Washington and UNICCO grounds and landscaping staff members. It is being donated by the Oceanographic Center to grace the Mesozoic Garden. The garden, located east of the Parker Building and south of the Science Annex, currently houses plants with ancient pedigrees such as cycads, araucaria, and horsetails. Messing is adding a time line of fossil-bearing boulders from every geological period.

Charles Messing with the boulder being transported to the main campus

Close up view of boulder showing fossil shells.

Publications

Maybruck, B.T. and **A. Rogerson**. 2004. Protozoan epibionts on the prop roots of the red mangrove tree, *Rhizophora mangle*. *Protistology* 3, 265–272.

Duarte, R., J.T. Nielsen, and **V. Dragojlovic**. Isolation of Oil of Nutmeg and Trimyristin from Nutmeg. (2004) *Chem. Educator* 9(6), 366–369.

Dragojlovic, V., S. Bajc, A. Amblès, and D. Vitorovic. Ether and ester moieties in Messel shale kerogen examined by hydrolysis/ruthenium tetroxide oxidation/hydrolysis. (2005) *Organic Geochemistry* 36(1), 1–12.

Sherlock Project Live

On December 6, **Charles Messing**, Ph.D., co-hosted the third episode of the Sherlock Project: Investigating the Natural World, with J. P. Keener, Ph.D., of the Broward County School Board. The two live programs, each 50 minutes long, were broadcast via the Broward Educational Communications Network (BECON) from the Deerfield Beach Fire Rescue Station and adjacent Hurricane Safe House.

Caroline Robertson a professor at FIU's Hurricane Research Center, demonstrated the power of hurricane winds by using an air cannon to project roof shingles and two-by-fours at (and through) plywood sheets. Deerfield Beach Fire Chief Jim Mathie and Battalion Chief Jim Van Buskirk demonstrated advances in hurricane preparation and disaster relief technology such as polycarbonate windows and infrared-sensitive scopes. Messing outlined the factors and forces that contribute to the formation of hurricanes. The programs were broadcast throughout the school system, but eight middle schools joined in the live hook-up; students were able to ask questions of the hosts and guests from their classrooms and get answers in real time during the shows.

Two Professors at Oceanographic Center Are Proud New U.S. Citizens.

Andrew Rogerson, Ph.D., and **Sasha Yankovsky**, Ph.D., each got their U.S. citizenship in the past year. Rogerson, originally from Scotland, received his in September, while Yankovsky, born in Russia, got his on December 15. Congratulations to both of them!

Sasha Yankovsky and Andrew Rogerson in front of a world map.

MASTERCURRENTS
INSTITUTE OF MARINE AND COASTAL STUDIES

Spring Schedule
CORE COURSES

Marine Geology
OCOR-5604
Introduction to Marine Geology includes lecture topics ranging from plate tectonics, hydrothermal vents, and the geological history of climate change to the geology of Florida. Lab projects will use microfauna collected in surface and core samples from Florida Bay for environmental reconstruction projects. Microfauna labs will include use of light microscopy and an introduction to scanning electron microscopy (SEM). Two exams and preparation and presentation of lab and library research papers will be required. **Lab Fee: $175.** Instructor: Patricia Blackwelder. Mondays.

Biostatistics II
OCOR-5606
This course is based on the practical applications of descriptive and inferential statistics with emphasis on principles and methods of summarizing and analyzing biological data. Measures of central tendency, dispersion, and variability testing will be discussed along with basic concepts of probability distributions, hypothesis testing, and decision making. The PHStat software package will be used in class lectures. This is an intermediate/advanced course in the practical applications of descriptive and inferential statistics with emphasis on advanced methods of analyzing biological data. Topics will include analysis of variance (ANOVA), linear regression, and correlation; data transformations; power analysis; good-or-fit tests; and nonparametric methods. Additional topics may include multiple and curvilinear regression techniques. Text: *Biostatistical Analysis 4th ed.* by J. Zar, packaged with PHStat software CD. **Lab Fee: $25.** Instructor: Mark Farber. Tuesdays. Prerequisite: Biostatistics I or similar course.

M.S. degree specialties are marine biology, coastal zone management, marine environmental science, and physical oceanography. Each course carries three credit hours or may be audited. Tuition is $567 per credit hour (50 percent less for audit). Classes meet once a week from 6:30 to 9:30 p.m. at the Oceanographic Center (unless otherwise specified.) The spring term runs from April 4–June 24 (unless otherwise specified). Registration ($25 nonrefundable fee) begins two weeks prior to the start of classes. For further information, call Andrew Rogerson or Melissa Dore at (954) 262-3610 or 800-396-2326, or email *imcs@nova.edu*. More information can be found at our Web site: *www.nova.edu/ocean*.

NOTE: It is assumed that those taking this course have a working knowledge of descriptive statistics, confidence intervals, and hypothesis testing. Those never having had a statistics course should take the more basic Introductory Biostatistics I course to be offered in the fall term 2005.

ELECTIVES

Environmental Remote Sensing and Geographic Information Systems
OCMB-6100/CZMT-0639/MEVS-5023
This course assumes that you have an interest in remote sensing and large-scale Earth observation. It is not intended to matter whether you consider yourself a chemist, physicist, biologist, geologist, or geographer. The intention is to present remote sensing (RS) and geographic information system (GIS) as tools for studying the Earth and its processes. The course is designed to be accessible to anyone with a reasonable grounding in the Earth sciences and is tuned to give a general introduction to a wide scope of relevant topics. Nonetheless, you must be prepared to grapple with some basic ideas of physics. The syllabus introduces electromagnetic radiation principles in the context of Earth observation and presents an overview of the current status of both active and passive air- and space-borne RS systems. Having followed a typical processing-stream required to extract quantitative information from satellite imagery, the student is introduced to the field of GIS through specific environmental case-studies. Image calibration, georectification, and classification are dealt with by providing a grounding in the theory underlying image processing. Remote sensing is not about interesting pictures of the Earth's surface, although there are some spectacular images to be discovered. It is really about careful, precise measurements of surface parameters, including the techniques and methodology, the scientific principles behind the techniques, and the real-world application of the technology. **Lab fee: $15.** Limited to 20 students. Instructor: Sam Purkis. Thursdays.

DAY COURSE

Community Ecology: Patterns and Processes
OCMB-6323/MEVS-5250/CZMT-0688
Using mainly coral reefs as examples, this course explores some key concepts of population and community ecology, both in theory and in practical work examples. Students will learn how populations expand and contract, how they interact to form communities, what the effects of predation and competition are, how niche separation works, and how disturbances affect diversity and species packing as well as spatial patterns. Students will be provided with some basic computational tools like Matlab to describe or model simple community parameters and processes, thus providing an entry point toward more advanced theoretical and

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computational topics. A prior knowledge of basic ecological, zoological, and mathematical (linear algebra, calculus) principles is necessary, since an understanding of mathematics is key to entry into theoretical and quantitative ecology. Rapid review will be provided. Students will have to do homework and take midterm and final exams. Grading will take performance in all components into account. **Lab Fee: $15.** Instructor: Bernhard Riegl. Meets: April 25–May 6.

FIELD COURSE—WEEKLONG

Taxonomy of Marine Invertebrates
OCMB-6085
This course will cover the taxonomy and ecology of marine invertebrates (emphasizing shallow tropical western Atlantic species) and train students in their identification. Field work and a self-paced laboratory are integral to the course. Class includes a weeklong field trip to the Keys. **Lab Fee: $350.** Trip Dates: May 21–28, Lectures: May 7 and 14. Limited to 15 Students. Instructor: Charles Messing.

FIELD COURSE—WEEKEND

Deep-Water Ecology of the Straits of Florida
OCMB-6325/ MEVS-5010
This course consists of three successive intensive sessions plus an exam. The first weekend (April 30–May 1, 2005) consists of a lecture series that introduces physicochemical, geological, and biological aspects of the Florida Current and Straits of Florida; a history of investigation of the area; and the instrumentation employed. The second session consists of shipboard work that includes physicochemical analyses of the water column (e.g., temperature, salinity, dissolved oxygen), and sampling plankton, mid-water and benthic faunas in ~100–600 m. Half the class will be aboard ship from the evening of May 9 to the morning of May 12, and the other half of the class from the morning of May 12 to the evening of May 16. In the third weekend session (May 21–22, 2005), students sort and identify collections and analyze organism distributions relative to abiotic environmental factors. The laboratory will be available during the week as well. Students take written and practical examinations on the fourth weekend (May 28, 2005). This section of the class is limited to 18 students. **Lab Fee: $200**. Instructor: Charles Messing.

M.S. IN PHYSICAL OCEANOGRAPHY COURSES

Near-Shore Processes
MSPO-5260
The subject of this course will be physical processes in the water depth less than 15–20 m. The particular questions to be addressed will be wave dynamics in the nearshore zone, wave breaking and refraction, edge waves and rip currents, tides, seiches and storm surges, boundary layers on the inner shelf, fate of buoyant discharge, estuarine dynamics, sediment transport and deposition by currents. **Lab Fee: $15.** Instructor: Alexander Yankovsky. Mondays. **Prerequisite:** Concepts in Physical Oceanography.

Data Analysis Methods in Oceanography
MSPO-5280
The course introduces the principles of data analysis in oceanography. Topics include the methods of data acquisition and recording, data processing and presentation, statistical methods and error handling, spatial analysis of data fields, and time series analysis methods. **Lab Fee: $15.** Instructor: Alexander Soloviev. Tuesdays.

Seminars and Defenses

DISSERTATION

David Z. McMahon, "Commercial Protocols for the Inland Culture of Litopenaeus vannamei (Boone 1931) (Crustacea; Decapoda; Penaeidae) in Zero-Exhange, Freshwater Systems." Committee Members: Andrew Rogerson, Charles Messing, Richard Dodge, and Tzachi Samocha (Texas A&M). Dec. 15.

THESIS

Nicolle Marie Cushion, "Determining Indicators and Methods to Evaluate the Effectiveness of Port Honduras Marine Reserve, Southern Belize." Committee Members: David Gilliam, Richard Spieler, Patrick Hardigan, (NSU Health Professions Division). Dec. 16.

Aya Shinohara, "Competition of Juvenile Acropora on Shallow Reefs, Okinawa, Japan." Committee Members: Bernhard Riegl, Curtis Burney, and Robert Van Woesik, (Florida Institute of Technology). Dec. 13

CAPSTONE

Amber Hester, "Sea Turtles Use Multiple Cues for Seafinding, Offshore Migration, and Nest Site Selection: Urban Development Disrupts Cue Recognition." Committee Members: Curtis Burney and Edward O. Keith. Jan. 14.

Ph.D. Degree Offered

The Oceanographic Center offers a doctoral degree in oceanography/ marine biology. The program requires a minimum of 90 credits beyond the baccalaureate. At least 48 credits must consist of dissertation research, and at least 42 credits must consist of upper-level coursework. Required courses include the four M.S. core courses. Other upper-level coursework is usually in the tutorial mode with the major professor. Tuition is $3,893 per quarter.

Successful Shrimp Farmer Defends Dissertation

David McMahon defended his Ph.D. dissertation on December 15. McMahon, who also received his master's degree in ocean sciences—specializing in marine biology and coastal zone management—from the Oceanographic Center in 1998, owns Ocean Boy Farms, a successful shrimp aquaculture business in Clewiston, Florida, near Lake Okeechobee. Ocean Boy received the USDA Organic Seal for its shrimp products on July 9, 2004, and is now the largest commercially viable, USDA-certified organic producer of shrimp in the United States.

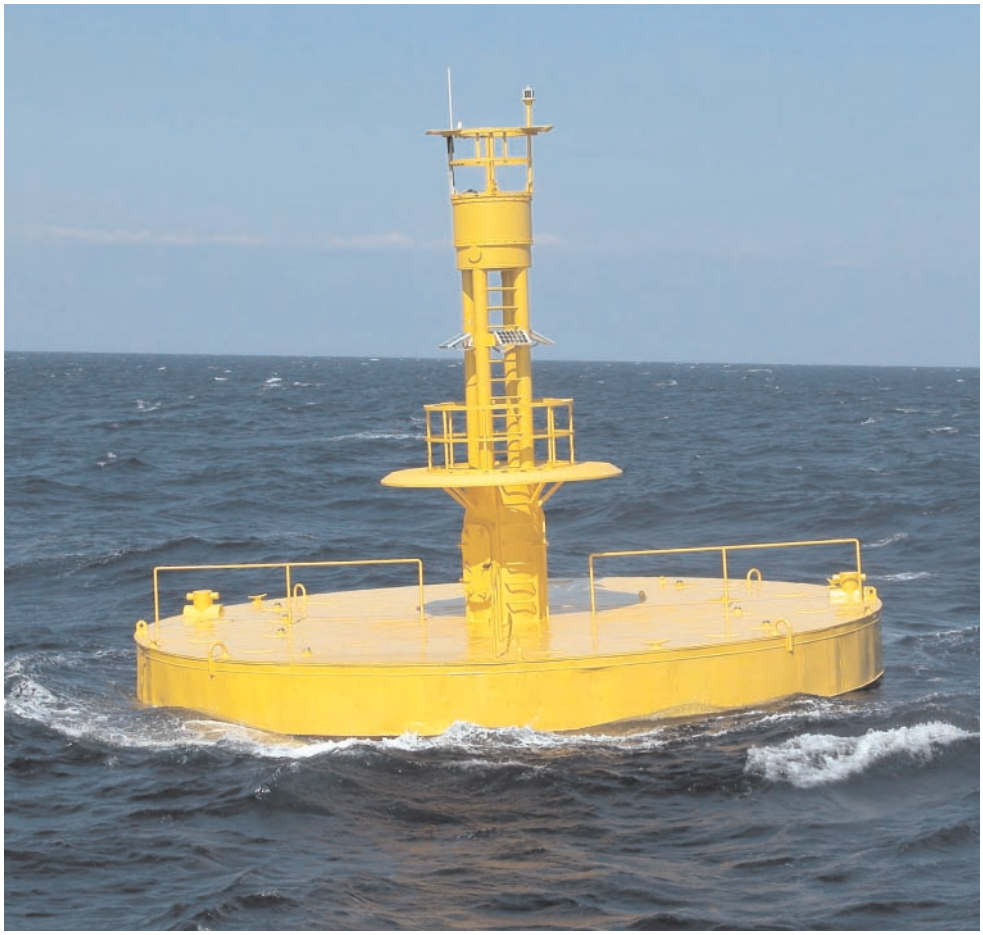
McMahon's defense was titled, "Commercial Protocols for the Inland Culture of Litopenaeus vannamei (Boone 1931) (Crustacea; Decapoda; Penaeidae) in Zero-Exhange, Freshwater Systems." The members of his committee were Andrew Rogerson, Ph.D.; Charles Messing, Ph.D.; Richard Dodge, Ph.D.; and Tzachi Samocha, Ph.D., of the Shrimp Mariculture Research Facility at Texas A&M University's Agricultural Experiment Station.

David McMahon (R) at his dissertation defense with Tzachi Samocha

Giant Buoy Deployed

M.S. student **Bill Baxley** lead engineer at the South Florida Testing Facility (SFTF), located adjacent to the Oceanographic Center at Port Everglades, recently directed the installation of a 50-foot diameter, 200,000-pound submarine mooring buoy in South Tongue of the Ocean (STOTO), Bahamas. The large buoy, which has sat at the SFTF since 2003, was refurbished, repainted, and fitted with a variety of electronic systems, including a satellite GPS tracking system and solar power system. The buoy is used for the measurement of submarine noises at STOTO, and is part of the Navy's ship silencing program. The buoy has a 10-year life span and is designed to survive hurricanes and other adverse weather conditions. Installed in 4,500 feet of water, the buoy uses 2" mooring line and more than 80,000 pounds of chain and anchor to hold it in place. The buoy allows for a very quiet platform to listen to submarines, without the associated sounds of a ship or other vessel.

Crane moving buoy to the water.

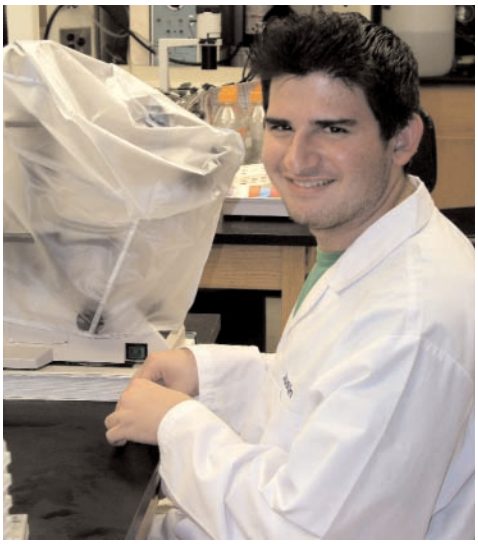


High School Students Collaborate with Researchers

Three high school seniors from the University School of NSU have begun working on a scientific investigation in collaboration with researchers from the NSU Oceanographic Center. Sophie Buzgon, Justin Ben-Hain, and Tatianna Vassilopoulos are participating in the project titled "Application of Culture Manipulation to Investigate Life Histories, Diversity, and Ubiquity of Naked Filose Amoebae from Mangroves." Their training and research is being supervised by **Andrew Rogerson**, Ph.D., and his Ph.D. student **Tina Gwaltney**. In addition to training these students in microbiological techniques, the research objectives include

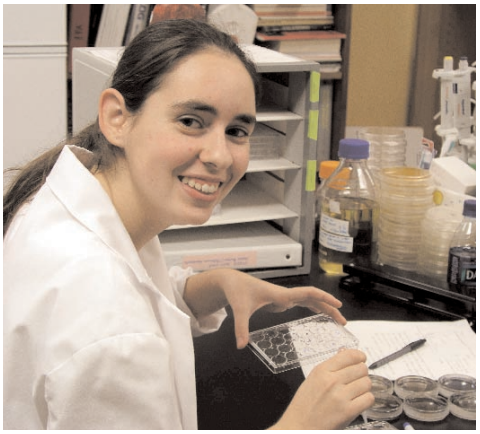
- documenting the numbers of naked filose amoebae in mangrove waters
- identifying (and naming) novel species of filose amoebae
- investigating the notion that filose amoebae are stages in the life-cycle of dinoflagellates
- using culture manipulation to maximize the recovery of amoebae from mangrove samples; furthering the emerging database that suggests that protists are ubiquitous

This research is being funded by the President's Faculty Research and Development Grant Program with matching support by Jerome Chermak, Ed.D., of the University School and **Richard Dodge**, Ph.D., of the Oceanographic Center. The students will present their results at the annual Student Research Symposium to be held at NSU in April.



Justin Ben-Hain

Sophie Buzgon



Tatianna Vassilopoulos

In Memoriam

Milan Manasijevic

The center was saddened to learn of the passing of one of it M.S. students. **Milan Manasijevic**, D.V.M., died on February 8 after a short illness. Manasijevic became gravely ill in late December, while he visited his parents in Budapest, Hungary. His family held funeral services for him on February 12 in Subotica, Yugoslavia, his home town. Manasijevic had defended his thesis, titled "Histopathology of cardiovascular lesions on 17 rough toothed dolphins (Steno Bredanensis) stranded in the Florida panhandle during 1977, 1998, and 2001" on July 21, 2003. His major professor was Edward Keith, Ph.D. He had just completed his first semester of Ph.D. studies in marine sciences and worked as a teacher's assistant at Stony Brook State University of New York. He was 34.

Beach Cleanup

NSUOC volunteers were part of a 70-member volunteer group that assisted in exotic plant removal Saturday, February 5. The event was organized by **Abe Smith**, NSUOC SGA president, and Carmen Duesler, park ranger. Volunteers represented NSU's Oceanographic Center, Environmental Law Society, and University School; University of Miami's Rosenstiel School for Marine and Atmospheric Science (RSMAS); Florida Atlantic University; Broward Community College; and several local Broward County high schools. Volunteers removed truckloads of invasive plants including Brazilian peppers, Australian pines, and several other exotic species in the Ecosystem Restoration areas of John U. Lloyd State Park. Volunteers were rewarded with a BBQ sponsored by Dean Williams at the Oceanographic Center following the cleanup. Carmen Duesler, who has been working at the park for over 20 years, commented, "Thank you so much for your help. This is the biggest volunteer group we have ever had." Thank you to everyone who volunteered. The park hopes that this cleanup will become an annual event. They welcome all the help they can get.

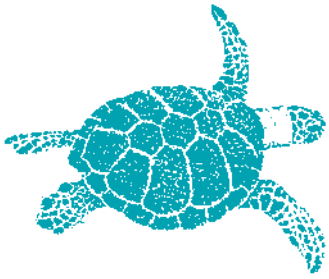
Ecosystem Restoration Area

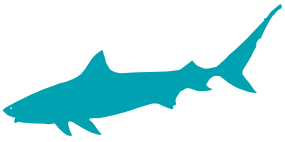
NOVA SOUTHEASTERN UNIVERSITY
Oceanographic Center
8000 North Ocean Drive
Dania Beach, Florida 33004-3078

Currents, Winter 2005

Attendees at the 25th Annual Symposium for Sea Turtle Biology and Conservation (back row l–r): Joe Hall, Stefanie Ouellette, Jessie Watters, Nicole Hamati, Fred Ottman; (front row, l–r): Christian Legner, Leslye Waugh.

Sam Purkis (L) and Bernhard Riegl with two members of the Qatari team that will study corals in the Arabian Gulf





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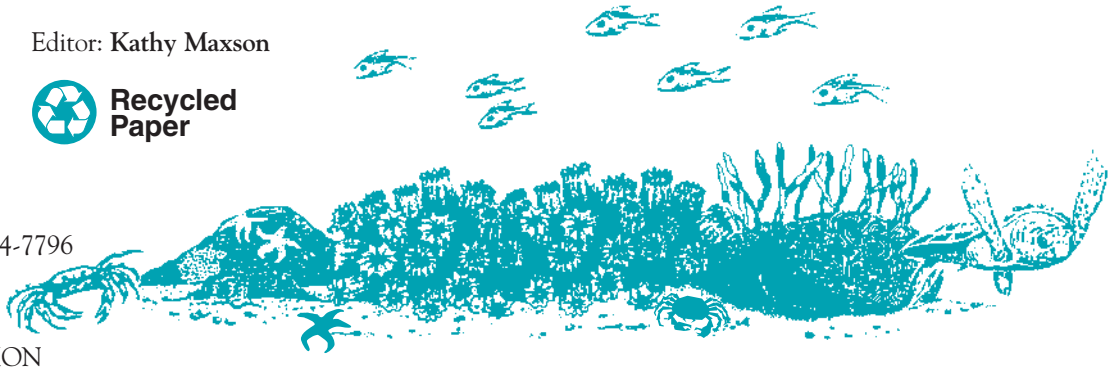

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